AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application. Claims 10-16, 19 and 21 have been amended herein, claims 17, 18, 22-26 and 28 have been cancelled without prejudice or disclaimer, and claims 39-49 have been added.

1-9. (Canceled)

10. (Currently amended) A system ~~for~~ that monitors and controls ~~monitoring the~~ a contaminated particle count in a chamber during a photoresist coating and a development process, comprising:

a plurality of lasers that are positioned at different heights in the chamber with respect to a surface of a substrate, the plurality of lasers respectively transmit light across the chamber and through an aerosol that resides proximate the substrate, respective light transmissions are attenuated by contaminated particles in the aerosol;

~~at least one laser disposed in the chamber, the at least one laser adapted to send transmits a ray of light across the chamber, and wherein the at least one laser includes a first laser located at a first height with respect to a substrate and a second laser located at a second height with respect to the substrate, the second height being different from the first height;~~

a plurality of detectors that are positioned to receive attenuated light from respective light transmission paths and that provide respective signals that are indicative of a light intensity associated with the received attenuated light;

~~at least one detector disposed in the chamber, the at least one detector comprising a first detector located at the first height and adapted to receive light from the first laser and a second detector at the second height adapted to receive light from the second laser, the at least one detector adapted to receive the ray of light and provide a signal corresponding to the intensity of the ray of light;~~

a measuring system ~~operably~~ that is coupled to the ~~at least one~~ plurality of detectors, the measuring system ~~adapted to receive the signal corresponding to the intensity of the ray of light and~~ converts the respective ~~the~~ signals to digital data; ~~and~~

a processor ~~operatively~~ that is coupled to the measuring system, the processor ~~adapted to receive the digital data from the measuring system and~~ analyzes the digital data and generates a control signal; and

an exhaust controller that receives the control signal from the processor and automatically activates an exhaust fan to remove contaminated particles from the chamber when the contaminated particle count exceeds a predetermined threshold, the exhaust controller automatically activates the exhaust fan before, during and after photoresist coating and development. ~~to determine a particulate count within the chamber, and the processor initiates dynamic cleaning of the chamber until the particulate count reaches an acceptable level.~~

11. (Currently amended) The system of claim 10, ~~wherein~~ the measuring system applies in-situ laser scattering.

12. (Currently amended) The system of claim 10, ~~wherein~~ the measuring system applies laser doppler anemometry.

13. (Currently amended) The system of claim 11, ~~wherein~~ the measurement system applies interferometry.

14. (Currently amended) The system of claim 10, ~~wherein~~ the measuring system applies spectrometry.

15. (Currently amended) The system of claim 10, ~~wherein~~ the processor outputs the analyzed data to a display.

16. (Currently amended) The system of claim 10, ~~wherein~~ the processor turns on an alarm if the contaminated particle count exceeds ~~a~~ the predetermined threshold ~~level~~.

17. (Cancelled)

18. (Cancelled)

19. (Currently amended) The system of claim 10~~,~~ further comprises ~~including~~ at least one mirror disposed in the chamber, the at least one mirror ~~adapted to~~ reflects ~~the ray of light received from the at least one~~ the transmitted light to ~~the~~ at least one detector.

20. (Canceled)

21. (Original) The system of claim 10, ~~wherein~~ the chamber is a cup.

22-38. (Canceled)

39. (New) A method that monitors and controls a contaminated particle count in a chamber during a photoresist coating and a development process, comprising:

positioning a plurality of optical waveguides at various heights in the chamber with respect to a surface of a substrate;

employing the plurality of optical waveguides to respectively transmit light through the chamber, respective light transmissions are attenuated by contaminated particles residing within respective light transmission paths;

positioning a plurality of detectors within respective transmission paths to receive the attenuated light;

utilizing the received light to generate respective signals that reflect a light intensity;

digitizing the signals;

analyzing the digitized signals to determine a contaminated particle count;

generating a control signal based on the contaminated particle count; and

employing the control signal to automatically remove contaminated particles from the chamber before, during and after photoresist coating and development process when the contaminated particle count exceeds a predetermined level.

40. (New) The method of claim 39 further comprises programming a controller to turn on an alarm for a predetermined period of time when the contaminated particle count exceeds a predetermined level.

41. (New) The method of claim 39 further comprises programming a controller to turn on an an exhaust fan for a predetermined period of time when the contaminated particle count exceeds a predetermined level.

42. (New) The method of claim 39 further comprises programming a controller to terminate the photoresist coating and development process if the particle count continues to exceed the predetermined level after exhausting the chamber for a predetermined period of time.

43. (New) The method of claim 39 further comprises dynamically adjusting an exhaust level in the chamber based on the contaminated particle count.

44. (New) The method of claim 39 further comprises employing one of a beam splitter and a multiple beam splitter to direct the light transmitted by the plurality of optical waveguides to the detectors.

45. (New) The method of claim 39 further comprises positioning the detectors outside of the chamber.

46. (New) The method of claim 45 further comprises employing a plurality of detection optical waveguides positioned partly within the chamber to convey the received attenuated light to the detectors.

47. (New) The method of claim 39 further comprises employing an estimation algorithm to determine the contaminated particle count.

48. (New) The method of claim 39 further comprises determining a contaminated particle count at respective optical waveguide / detector pair heights.

49. (New) A system that monitors and controls a contaminated particle count in a chamber during a photoresist coating and a development process of a semiconductor, comprising:

means for transmitting light through an aerosol residing above a substrate during substrate processing within a chamber;

means for receiving the transmitted light after the light is attenuated by contaminated particles within the aerosol;

means for determining a contaminated particle count from the attenuated light;

means for dynamically controlling the amount of contaminated particles in the chamber during substrate processing by cleaning the chamber when the contaminated particle count exceeds a desired level.